

REMARKS

Upon entry of this Amendment, claims 1 - 15, 28 - 32, and 47 - 54 are pending. Claims 28 - 32 are withdrawn. Pending independent claims include claims 1 and 15. Claims 1 - 15 and 47 - 54 stand rejected under 35 U.S.C. §103 as obvious in view of a combination of the teachings of US Patent 5,448,753 to *Ahl* and 6,907,246 to *Xu*.

Rejection Under §103

A claimed invention is *prima facie* obvious when an Examiner's proposal includes: (1) one or more references; (2) that were available to the inventor; (3) that teach every claimed limitation; (4) a reasonable suggestion to combine or modify the references is explained by the Examiner; and (5) the proposed combination or modification would appear to be sufficient to have made the results of the claimed invention predictable to one of ordinary skill in the art. (see treatise by *Donner* "Patent Prosecution" third edition, p. 756 (2003) and generally *KSR v. Teleflex*). Elements (3), (4), and (5) are not met. The rejection cannot stand if any one element (3), (4), or (5) is not met.

A. Element (3) is not met when *Ahl* does not disclose any step of the claimed method, *Xu* does not supply a "tiling pattern", and *Xu* expressly teaches away from directional communication technology in a "subscriber platform".

The Examiner states that *Ahl* does not teach any of the steps of the method of claim 1. Logically, *Ahl* cannot teach any of the means for performing those steps as recited in the subscriber platform of claim 15. Applicant agrees with both positions.

The Examiner has taken the position that a peripheral station 11 in *Ahl* is a "subscriber platform" that when modified to perform directional communication as in *Xu*, to increase cell load capacity, makes obvious the method of claim 1 and the structures of claim 15.

In contrast, claims 1 and 15 recite, *inter alia*, a "tiling pattern associated with a respective set of sector allocation patterns stored in the subscriber platform, each sector allocation pattern associated with a respective set of channels." From Applicant's FIGs. 6A and 7A as further

discussed in the specification, a sector allocation pattern, *inter alia*, facilitates directional communication by a subscriber platform with its immediate neighbors. According to method 1100, FIGs. 6B, 7B, and 11A-E and as discussed in the specification, the tiling pattern is expanded with geometric regularity (hence the name "tiling" pattern) by action of each prospective member platform (a role describing a subscriber platform).

There is nothing in *Xu* remotely corresponding to the claimed method as performed by a terminal. *Xu* teaches a system of base stations serving wireless communications devices also called terminals. (col. 1 lines 15 - 25). As in *Ahl*, terminals are assigned a channel by the base station:

The present invention achieves the goal of significant reduction of multi-cell interference in a wireless communication network by making proper assignment of different kinds of communication channels to different terminals located at different geographical locations. ... Once the location of the wireless terminal is determined, the terminal is assigned with one or more frequency channels associated with that geographical segment where it locates. (col. 2 lines 39 - 41 and lines 54 - 58, emphasis added).

In *Ahl*, the method performed by a peripheral station includes merely receiving a command that dictates a direction, timing, and power the peripheral station is to use when communicating with a base station; and communicating with a central station using the dictated direction, timing, and power. *Ahl* states:

... the time intervals given to the [peripheral] stations in a pair at risk are chosen by the control system so as to minimize the risk of interference. (col. 5 lines 19 - 21, emphasis added).

The phrase "control system" in the above quote is the only use of that phrase in the disclosure by *Ahl*. One possible interpretation is that the phrase "control system" means a "central station" consistent with the earlier statement by *Ahl*:

Position data are utilized when the central stations calculate and control the peripheral stations transmitting and receiving direction, time assignment according to traffic demand and timing in other subsystems, power and when applicable carrier frequency in order

to optimize capacity and quality and minimize interference. (col. 3 lines 47 - 49 emphasis added).

From the above passages and the absence of any teaching in *Ahl* and *Xu* to the contrary, *Ahl* (and *Xu*) teach peripheral stations (terminals) that transmit and receive to communicate only with a central station (base station). To accomplish "communicating with the other subscriber platforms" a "subscriber platform" as claimed must do more than a peripheral station in *Ahl* (or a terminal in *Xu*) which does not receive transmissions from other peripheral stations or terminals so as to respond to them.

Nowhere in *Xu* is there any teaching of a "set of sector allocation patterns stored" in a terminal. The terminal in *Xu* is the only equipment associated with a subscriber. The terminal is recognized as subscriber equipment from *Xu*'s explanation that "Each cell may be served by a single base station, which is further connected to a ... subscriber management system ("SMS") ... A plurality of wireless communication devices/terminals are connected to ... the SMS [and] the router by establishing radio links with one or more nearby base stations." (col. 1 lines 18 - 25).

As is readily apparent from Applicant's FIGs. 6A and 7A, a sector allocation pattern includes geometric angles and directions corresponding to the use, by a subscriber platform, of one or more directional antennas. A subscriber platform as claimed uses directional communication to communicate with other subscriber platforms.

A person of ordinary skill is not led to combine *Ahl* and *Xu* at least because *Xu* specifically states "the directional antenna is traditionally bulky and expensive, and thus renders it impossible or impractical to equip the handheld wireless terminals therewith". (col. 2 lines 7 - 9).

Of the many failings of *Xu* to meet the claims' limitations, *Xu* does not supply any step of the method in claim 1 performed by a "subscriber platform", lacks any teaching of a "tiling pattern", has no "set of sector allocation patterns stored in the subscriber platform", and expressly teaches away from the combination proposed by the Examiner. Logically, none of the structures recited in claim 15 are supplied by *Xu* when those structures are recited with functions that parallel the method steps of claim 1. Consequently, the obviousness rejections of claims 1 and 15 cannot stand.

B. Elements (3) and (4) cannot be met when FIG. 15b in *Ahl* does not disclose a "tiling pattern" as claimed but merely discusses inoperable arrangements incapable of reliable communication.

The Examiner has mischaracterized FIG. 15b of *Ahl* as a teaching of a pattern of some sort. FIG. 15b is not a pattern; it is a composite of transmissions that occur at a minimum of three different times and so does not teach a pattern of communication at one time. In the portion of *Ahl* the Examiner identifies as a teaching, *Ahl* defines a "pair at risk" and illustrates in the composite representation of FIG. 15b three pairs at risk. For purposes of this discussion, we adopt a reference point (not shown) that exists in the center of the figure and is included in all of the three circles. We also define a reference direction toward the top of the page as 'north'. In FIG. 15b, three central stations (also called base stations) are shown, herein called the northwest base station, the northeast base station and the south base station. There are five peripheral stations shown (only three identified as 11).

The first pair at risk consists of the peripheral station east of the northwest base station and the peripheral station west of the northeast base station. This pair is at risk first because the transmission 26 by the northwest base station is directed toward both; and second because the transmission 25 from the northeast base station is directed toward both. The pair is at risk when (at time herein called time T1) the peripheral stations of the pair have been instructed to receive at the same time (same time slot).

The second pair at risk consists of the peripheral station east of the northwest base station and the peripheral station east of the east base station. This pair is at risk because the transmission 26 by the northwest base station is directed toward both. The pair is at risk when (at time herein called time T2) the peripheral stations of the pair have been instructed to receive at the same time (same time slot).

The third pair at risk consists of the peripheral station southwest of the northwest base station and the peripheral station southwest of the south base station. This pair is at risk because the transmission 27 from the northwest base station is directed toward both. The pair is at risk when (at time herein called time T3) the peripheral stations of the pair have been instructed to receive at the same time (same time slot).

Times T1, T2, and T3 must be different times in keeping with the general teachings of *Ahl*. In *Ahl*, transmission from a central station occurs in only one direction at any one time: "The system includes a central station antenna which is directed towards one specific peripheral station during short time intervals during which information is transferred" (col. 4 lines 1 - 4, emphasis added). Transmissions 24 and 25 from the northeast base station are not simultaneous. Transmissions 26 and 27 from the northwest base station are not simultaneous.

The composite of transmissions that occur at a minimum of three different times do not teach a pattern of communication at one time and so is vastly dissimilar from a "tiling pattern" as claimed. Consequently, any rejection based on the Examiner's mischaracterization of FIG. 15b of *Ahl* cannot stand.

C. Element (5) is not met when Applicant achieves a different result, not possible from the combined teachings of *Ahl* and *Xu*.

Knowledge by a subscriber platform of the tiling pattern already in use and the sector allocation pattern and position that is available permit the subscriber platform to determine how to cooperate as a new member of an existing network consequently expanding the regular geometry of the tiling pattern. This result cannot be accomplished by a peripheral station in *Ahl* (or a terminal in *Xu*) at least because such a peripheral station (or terminal) has no need to know and according to the absence of any teaching to the contrary knows nothing more than one direction, timing, and power for communication of subscriber information (e.g., audio data for supporting a phone call).

In contrast to the systems of *Ahl* and *Xu*, the claimed subscriber platform joins an existing network ("communicating with other subscriber platforms") as opposed to being told how to communicate with a central station (or base station).

Without element (5), the rejection as stated by the Examiner is incomplete and does not constitute a showing of the required *prima facie* case for obviousness.

D. Element (5) is not met at least because the functions of a base station do not make obvious claims reciting a subscriber platform or methods performed by a subscriber platform when the art and consequently a person

of ordinary skill in the art *distinguish* a subscriber platform from a base station.

Claims 1 and 15 introduce the claimed subject matter with the phrase "a subscriber platform" in the preamble of each claim. Then, the phrase "other subscriber platforms" in the body of the claim gives life and meaning to the preamble. Consequently, the features of a "subscriber platform" recited in the preamble are limitations of the respective claim.

The phrase "subscriber platform" is a combination of a marketing distinction ("subscriber") and an engineering distinction ("platform"). In the market for telecommunication systems and services, a "subscriber" has long meant the paying customer who benefits from the service; and the service has as a primary purpose the provision of functions useful and desired by the customer. Applicant associates subscribers and consumers in the Abstract, "Operators have been looking for a "last mile" solution (e.g., a communication technology for subscribers that are more or less a mile from the end of a wired network) to bring their communication products directly to the consumers." Applicant also discusses a subscriber platform as subscriber equipment, "Bandwidth is a colloquial expression for the data rate into or out of subscriber equipment." (page 2 lines 12 - 14); and refers to the purpose of a subscriber platform in terms of the subscriber, "A method, according to various aspects of the present invention, for increasing throughput to a particular subscriber of a provided network of subscriber platforms includes the following steps in any order: (a) automatically recognizing that communication routes employing an added subscriber platform are available; and (b) automatically routing increased throughput for the particular subscriber via the added subscriber platform." (page 3 lines 6 - 10).

As telecommunication services have grown from voice to also include paging, text, and video, referring with a marketing term to the portion of the system exclusively used by a customer has been, in practice, more generally understood than naming that portion with functional engineering terminology such as telephone, handset, cell phone, and the like. Consequently, though the original use of the term subscriber (e.g., subscriber line) is lost in antiquity, the term "subscriber", used in a noun stack such as "subscriber unit" has taken on meaning without specifying the functions of the named apparatus in engineering terms. For example, all of the following refer to a class of equipment by the marketing term "subscriber" or to the user of such equipment as a "subscriber". US Patent 5,613,194 to *Olds* refers to users of

paggers as "subscribers" (col. 1 line 46). *Herrig* refers to subscriber units independent and different from base station equipment (col. 4 lines 26 - 33). *Bandiera* refers to subscribers, subscriber stations, and base stations (col. 1 para. [0008]). *Lopes* refers to subscriber units and base stations (col. 2. lines 57 - 59). Consequently, the term subscriber platform is distinguishable by the person of ordinary skill in the art from the term "base station".

The term "platform" as used by Applicant in the specification "generally includes a processor, transceiver unit having any number of transceivers (e.g., 6), and an antenna unit having a corresponding number of antenna arrays (e.g., 6) (page 8, lines 15 - 17). Consequently, the term "platform" constitutes engineering terminology referring to the capabilities of equipment.

Mesh networks and *ad hoc* networks do not employ base stations. In these networks, apparatus (not called a base station or central station) at each network node performs routing, heretofore a function reserved to base stations. In *ad hoc* networks, such as discussed in US patent 6,850,502 to *Kagan* a new node is invited to join a network by receiving an invitation from a neighbor node that dictates defined sectors, frequencies, and timing. *Kagan* teaches subscriber radios distinct from network nodes. (col. 4 lines 40 - 49). These subscriber radios are the sources and destinations of user data. No teaching in *Kagan* suggests the functions of a node be performed by a subscriber radio.

The Examiner's mischaracterization of central stations and base stations in *Ahl* and *Xu* cannot make obvious the recited "subscriber platform" at least because the terms central station, base station, and subscriber platform are used in the art to distinguish equipment having different features for different purposes. Consequently, a person of ordinary skill having combined *Ahl* and *Xu* would have nothing more than a central station with additional features. A base station, even with additional features, is clearly distinct from a "subscriber platform" as claimed. Without element (5), the rejection as stated by the Examiner is incomplete and does not constitute a showing of the required *prima facie* case for obviousness.

Conclusion

As discussed above, the rejection of both pending independent claims is traversed. The rejection of dependent claims cannot be sustained when the rejection of independent claims is traversed. The rejection of claims 1 and 15 cannot be maintained unless all four arguments A. through D. discussed above are overcome by the Examiner. Any one of the four basis for

traversing the stated rejection is sufficient on its own to permit grant of patent on the pending claims.

Reconsideration is respectfully requested. Applicant believes the case is in condition for allowance and respectfully requests withdrawal of the rejections and allowance of the pending claims.

The Examiner is invited to telephone the undersigned at the telephone number listed below if it would in any way advance prosecution of this case.

Respectfully submitted,

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